REMARKS/ARGUMENTS

Applicants respectfully request that the above application be reconsidered in view of the above amendments and the following remarks. Claims 1-25 are currently pending.

Independent Claims 1, 15, 18, and 22 have been amended to emphasize that the fixture in part a) holds the impressionable material in place (see paragraph [0028] lines 11-12) in fixed position against a surface feature while maintaining a substantially constant orientation (see paragraph [0021] lines 2-3). No new matter is introduced, and it is requested that these amendments be entered.

A. Response to Rejection of Claims 1-5, 7, 15-20 and 22-24 under 35 USC 102(b) as Anticipated by U.S. Patent 6,019,669 (Kitao et al.)

The Examiner has maintained the rejection of Claims 1-5, 7, 15-20 and 22-24 under 35 USC 102(b) as anticipated by U.S. Patent 6,019,669 (Kitao et al.) For convenience, the rejection is repeated below.

1. Regarding Claims 1 and 18, the '669 reference is cited as disclosing a lens shape measuring apparatus comprising: a fixture to hold an impressionable material in a fixed position against a surface feature for the period needed for the impressionable material to conform to the surface feature and register the shape of the surface feature; said fixture removable such that the profile created in the impressionable material remains substantially unchanged by removal; and said fixture mountable in a profiling device repeatably from measurement to measurement.

2. Regarding Claims 2, 15 and 22, the '669 reference is said to disclose: a fixture to hold an impressionable material in fixed position against an edge for the period needed for the impressionable material to conform to the edge and register the shape of the edge; said fixture having a positioning element and a measuring element, said measuring element removably fitted to said positioning element in a manner to hold said measuring element in alignment with said positioning element. It is also said that the stepping motor is actuated by means of the calculation/control circuit 100 to move the carriage.

3. It is stated that in figure 7, 8b-d, 9-10, claims 3 and 16, the measuring element has a free axis (Z-X) of movement such that the impressionable material may be moved toward or away from the edge being profiled.

4. Regarding Claims 4, 17, 19 and 23, it is said that the '669 reference teaches an apparatus further comprising an adjustable stepped gage block to regulate the position of the impressionable material in relation to the edge being measured.

5. Regarding Claims 5, 7, 20 and 24, it is said that the fixture contacts at least one datum of the part being measured to provide a reference location.

In the Office Action, the Examiner has noted a definition of impressionable is "capable of being easily impressed". Moreover, U.S. Patent 6,090,027 has been cited as disclosing cuts made to an impressionable substrate.

Applicants respectfully traverse the rejection.

First of all, Applicants submit that the cited patents relate to different fields than the present invention. The '669 patent deals with machine control and machining (specifically, grinding) of lenses or lens material. The '027 patent deals with methods for marking parcels. In contrast, Applicants' invention relates to the field of metrology, specifically the measurement of previously machined parts. The following table summarizes these differences:

'669	Application	'027
Actively controlling and grinding (machining) lenses	Measuring surface features in previously machined parts	Marking parcels for shipment or inventory
Scope: Lens grinding and grinding control	Scope: Metrology of machined parts	Scope: Parcel marking
Applies to lens material	Applies to machined solid material	Applies to methods for marking parcels

The '669 patent does not form or measure fixed profiles of previously machined parts. Rather, it deals with grinding and controlling the grinding process. The present application deals with measuring the results of a machining process after machining of parts. The Applicants respectfully contend that lens grinding and methods for controlling a grinding device are distinct from measuring the results of a machining process at some time after machining has taken place.

Further, methods for controlling a grinding or machining device do not generally provide any insight as to how the metrology of the machined part should be conducted subsequent to the machining process. While the present invention could be applied to the results of the '669 apparatus to measure the nature of the edges and other surface features of ground lenses, the '669 patent does not suggest doing that or address the metrology of machined parts in any way. The '027 patent has nothing to do with the field of machined part metrology.

The present invention deals with a method and apparatus to reliably impress a shape in an impressionable material and ensure accurate recording and measurement of the profile of surface features of machined parts held in place (see paragraph [0028] lines 11-12). This is done using a fixture that holds the impressionable material in place in a fixed position against a surface feature while maintaining substantially constant orientation to the surface feature (see paragraph [0021] lines 2-3) for the time needed for the material to conform to the shape of the surface feature and maintain that shape. The apparatus and method of using it are improvements in the process for forming profiles of surface features by being able to hold the impressionable material steady (see paragraph [0026] line 4) and in place (see paragraph [0028] lines 11-12) to form the impression.

This is distinct from the '669 patent, which depends on movement and senses relative shapes of various parts of a lens using a "feeler" head. Unlike the present invention, the '669 patent does not seek to permanently register a shape by holding the material as steady as possible. The '669 patent describes in column 1, lines 56-65 a lens shape measuring apparatus capable of dynamically determining the degree of a difference in surface level of an eyeglass lens based on measurement data obtained by a feeler, which is moved across the lens surface and is not held in place as steady as possible. This feeler does not use an impressionable material that conforms to the surface while being held as steady as possible. Rather, the feeler only touches the surface and is moved over the surface to determine differences in lens thickness so that the lens can be oriented and ground to properly fit an eyeglass frame. The Examiner's assertion that the rotating lens holder of the '669 apparatus holds the lens in fixed position is in error. In fact, the lens holder depends on rotational movement and contributes to the dynamic operation of the lens grinding apparatus by rotating the lens.

In contrast, Applicants' invention relates to an apparatus and method for holding an impressionable material such as a heated wax in place in fixed position against a surface feature maintaining a substantially constant orientation for the period needed for the impressionable

material to conform to the surface feature and register the shape thereof. The fixed impression so formed is registered in the impressionable material by holding it as steady as possible. The impression is removed after the impressionable material has hardened. A part of the apparatus (measuring element) is then placed in a profiling machine in a manner that ensures that the profile of the impressionable material is reliably placed in the same position under the profiling head from measurement to measurement.

The '669 reference does not seek to form an impression of a surface feature such as an edge while an impressionable material is held in position, does not seek to measure the shape of a surface feature but rather its presence, and does not seek to reliably place a profile formed by an impressionable material into a profiling machine for measurement. Furthermore, the '669 reference offers no method for conformally forming subsequently measurable profiles of edges or other surface features, does not provide a removable part of the apparatus for placement in a measuring apparatus, and does not offer any method for reproducibly placing a profiling material or a measuring apparatus in position for repeatably measuring the secured profiles of surface features.

The '669 reference performs all its actions in a dynamic manner. While the reference senses information about a lens surface, it does so dynamically using a method that electromechanically registers surface features, particularly the presence of a bifocal convex or concave shape, and comprises a grinding apparatus for shaping the perimeter or side of the hard lens. The '669 reference does not recover any information about machined parts. Rather, it uses the feeler information to control the action of the grinding portion of the apparatus. As described at column 2, lines 3-26, the feeler simply touches the lens in a dynamic manner and does not conform or change its shape fixedly or in any way at all. In fact, the feeler can only work properly if it does not conform to the surface shape but only touches it and rides along it.

After the lens is mounted in the '669 apparatus, its side is shaped in perimeter and removed. No provision is made by the '669 reference to replace the lens in a repeatable position in the apparatus or any other measuring apparatus. The '669 reference also does not disclose subsequently profiling the lens in a manner that is repeatable from measurement to measurement. The lens of the '669 reference, once the side is ground to proper shape, simply fits an eyeglass frame. Once the lens is removed from the apparatus, the apparatus is ready to grind the next

lens. No reference position is retained by the apparatus and any positional reference to a previously ground lens is lost by the apparatus when the lens is removed.

In view of the above differences, it is submitted that the '669 reference does not disclose or suggest the apparatus of Claims 1, 2, or 15, or the method of Claims 18 or 22. Accordingly, Applicants submit that these claims are patentable over the '669 reference.

Regarding Claims 4, 17, 19 and 23, the Examiner contends that a stepping motor could be used to replace the stepped gage block of the application. However, as discussed above, the '669 reference does not disclose or suggest the apparatus or method of Claims 1, 15, 18 and 22, upon which Claims 4, 17, 19 and 23 are dependent. Accordingly, Claims 4, 17, 19 and 23 are patentable over the '669 reference.

Regarding Claims 5, 7, 20 and 24, the Examiner contends that rotating shafts 16 and 17 of the '669 reference constitute a fixture for holding and rotating the lens that is being shaped to fit an eyeglass frame, citing the contact with the lens as providing a reference point or datum of the lens being measured. Applicants note that the '669 reference does not provide a two part measuring device wherein one of the parts is specifically designed to fixedly register the position of the other part with regard to the object being measured, as described in paragraphs [0024], [0025] and [0026] of the application. Further, the rotating shafts 16 and 17 as shown in figure 7 of the '669 reference dynamically hold the lens in place and rotate it while it is being measured and ground by the rest of the apparatus. They do not constitute a fixed, static datum as does the datum of the invention. Rather, the shafts are dynamic in operation, are driven by the apparatus in their rotation, and are not used as a reference position of the part until the lens is measured by other means. It is not until that is done that the positioning of the lens with respect to the grinding of the lens perimeter is referenced to the degree of rotation of shafts 16 and 17. Accordingly, Applicants assert that Claims 5, 7, 20 and 24 are patentable over the '669 reference.

In view of the above, Applicants submit that the '669 and the '027 patents do not relate to the present invention and do not anticipate any of the claims. Applicants further contend that the invention would not have been obvious to one skilled in the art of metrology from a reading of either or both of these references. Withdrawal of the rejections and allowance of Claims 1-25 is respectfully requested.

B. Allowable Subject Matter

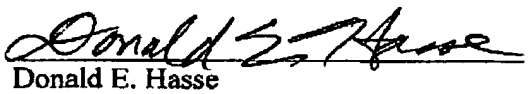
Claims 6, 8-14, 21 and 25 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. Applicants traverse this objection on the basis of the arguments presented in section A.

C. Conclusion

It is believed that the above represents a complete response to the Examiner's rejection and places the application in condition for allowance. Accordingly, reconsideration and allowance of Claims 1-25 are respectfully requested.

Applicants would appreciate the courtesy of a telephone call should the Examiner have any questions or comments with respect to this response.

Respectfully submitted,

By: 

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